

## TO STANDARDIZE THE TECHNOLOGY OF GINGER POWDER BASED *PEDA* STUDIES IT'S BACTERIOLOGICAL CHARACTERISTICS

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### ABSTRACT

Present investigation was carried out to standardize the technology, microbial characteristic and cost structure of ginger powder based *peda*. *Peda* was prepared from buffalo milk with constant level of sugar (30 per cent by weight of *Khoa*) and different levels i.e. 0% ( $T_0$ ), ( $T_1$ ) 2%, ( $T_2$ ) 4% and ( $T_3$ ) 6% of ginger powder by weight of *Khoa*. The product prepared using 2% ginger powder was found most acceptable on the basis of overall acceptability. The average standard plate count of fresh sample was found to be 8, 6, 5 and  $3 \times 10^3$  cfu per gm for treatments  $T_0$ ,  $T_1$ ,  $T_2$  and  $T_3$  respectively. Yeast, mould and coliform count were not observed in fresh *peda* samples. The cost for preparation of bottle gourd *Peda* for treatment  $T_0$ ,  $T_1$ ,  $T_2$  and  $T_3$  was Rs. 153.53, Rs.152.42, Rs. 151.34 and Rs. 150.29 per kg, respectively. It can be concluded that the *peda* with 2 percent ginger powder can be very well utilized for preparation of nutritious, palatable and low cost *Peda*.

**KEYWORDS:** Microbial Quality, Peda, Cost Structure

### INTRODUCTION

Since time immemorial traditional Indian milk products have been an inseparable part of the socio-cultural life of India. At the time of childbirth, wedding ceremony, offer job, inauguration of new house, feasts, festivals, social or religious occasions, milk sweets are always offered. The mass appeal enjoyed the fact that about 50 per cent of India's milk production is utilized for making these products (De).

Out of the total milk produced in India, 46 per cent is consumed as liquid milk, 4 per cent converted into western milk products such as milk powders, processed butter and processed *cheese* and remaining 50 per cent is converted into traditional dairy products such as *Ghee/Makhan* (clarified *butter*), *Dahi* (*Yoghurt*-like), *Khoa* (Partially desiccated milk product) and *Chhana* and *Paneer* (unprocessed *cottage cheese*). Out of these 7 per cent of milk is used for the manufacture of *khoa* based sweets as *peda*, *burfi*, *kalakand*, *pantao*, *milk cake* etc. (Aneja et.al 2002).

The manufacture of *peda* is mostly restricted to halwais. Since *peda* has lower moisture content it has a better shelf life. It is prepared by mixing *khoa* with measured quantities of sugar. *Peda* is whitish yellow in colour and has a coarse grainy texture. Its quality is determined by chemical composition, body, texture, appearance and microbial quality.

The medicinal properties of ginger in preventing cough and cold are well documented. Now a day's tendencies among people to assume a high degree of confidence in wholesomeness and safety of natural foods and natural flavour than those based on chemical. Ginger act as a useful food preservative. Ginger has nutritive as well as medicinal value (Anonymous 2014).

So far no optimum research work had been conducted on utilization of ginger powder in *peda*. With to aim of value addition and looking to the health benefits and pleasant aroma of ginger powder, the research experiment is planned to study on preparation of *ginger peda*, by using buffalo milk *khoa*.

## MATERIAL AND METHODS

The whole fresh and clean buffalo milk was obtained from buffalo, maintained at Department of Animal Husbandry and Dairy Science, College of Agriculture, Latur. Good quality dried ginger procured from the local market.

### Treatment Details

Treatment combinations used for preparation of ginger *peda* were as detailed below:

- T<sub>0</sub> -Buffalo milk *peda* (control)
- T<sub>1</sub> -*khoa* + ginger powder @ 2 % on *khoa* weight basis.
- T<sub>2</sub> -*khoa* + ginger powder @ 4 % on *khoa* weight basis.
- T<sub>3</sub> -*khoa* + ginger powder @ 6 % on *khoa* weight basis.

The different levels were tried and compared with control (T<sub>0</sub>).

In above preparation sugar was added @ 30% on *khoa* weight basis.

## TO STANDERDIZE THE TECHNOLOGY OF GINGER POWDER BASED *PEDA*

To standardize the technology of ginger powder based *peda*, the basic procedure for the manufacture of *khoa* is same up to the pat formation stage. The *khoa* pat is invariably made after removing the pan from the fire and working the contents up and down into a single compact mass. Made the mixture of grind sugar and ginger powder. This mixture was added in the *khoa*. The pat formation stage is the ideal stage where the mixture of grind sugar and ginger powder was easily mixed in *khoa*. Later on continuous stirring and scrapping is followed for homogenous mixing. Spreading the mass to the side of pan and collect it at the centre and remove from pan. Cool the mixture for 5 to 10 minute and then start to made *peda* with suitable size, shape and weight. Generally the weight of *peda* varies from 15 to 20 gm.

## TECHNOLOGY FOR PREPARATION OF GINGER POWDER BASED PEDA

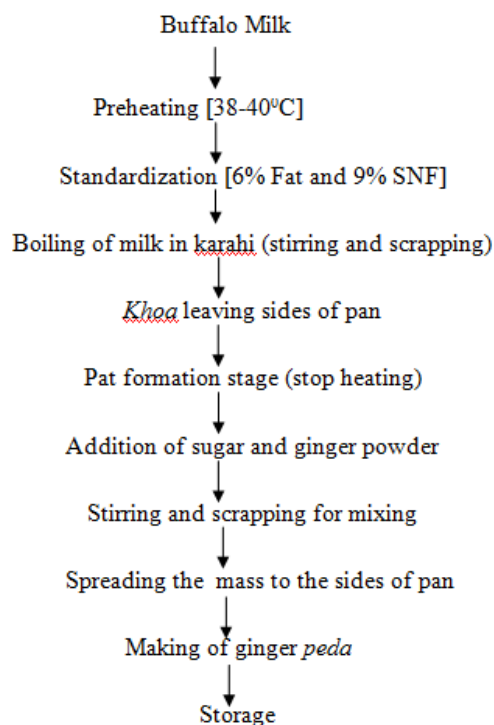


Figure 1

## ANALYSIS

Microbiological parameters of fresh *peda* were determined by using standard procedure for Total plate count by method cited in ISI: 5402(1969) by using Tryptone Dextrose Agar medium, Yeast and Mould count by method cited in ISI: 5403(1969) by using Potato glucose agar medium and Coliform count (Chalmers, 1955) by using Meconkey's broth medium. In all four replication was carried out. The results obtained were analyzed statistically by using completely randomized design (CRD) as per Panse & Sukhatme (1985).

## RESULT AND DISCUSSIONS

### Microbial Characteristics of *Peda* with Ginger Powder

The fresh product prepared was subjected to microbial analysis with respect to total plate count, yeast and mould count and coli form count.

### Total Plate Count in ginger *peda*

Results related to total plate count for control *peda* ( $T_0$ ) and *peda* with ginger powder 2, 4 and 6 per cent ( $T_1$ ,  $T_2$  and  $T_3$ ) are presented in Table 4.1.

It was observed that the total plate count of fresh samples was decreased from 8 to 3 cfu x  $10^3$  per gm for treatment  $T_0$  to  $T_3$ . The significant difference was observed in between treatments. The total plate count of *peda* was decreased due to the antimicrobial property of ginger powder.

**Table 1: Total Plate Count of *peda* with Ginger Powder**

Treatment	Replication				Mean Score
	Microbial Count cfu X 10 <sup>3</sup> / gm				
	I	II	III	IV	
T <sub>0</sub>	8	7	8	9	8 <sup>a</sup>
T <sub>1</sub>	6	7	5	6	6 <sup>b</sup>
T <sub>2</sub>	5	6	4	5	5 <sup>b</sup>
T <sub>3</sub>	3	4	2	3	3 <sup>c</sup>
SE ± 0.416					
CD at 5% =1.250					
Values with different superscripts are significantly different at P<0.05					

The result recorded in present investigation for standard plate count was comparable with findings of below mentioned research workers.

Patel *et al.* (2006) conducted the studies on traditional and mechanized method of *peda* making. They reported that traditionally made *peda* contained standard plate count 5.3 cfu per gm. Kumbhar (2011) prepared ginger juice *burfi* and observed that SPC count was ranged between 0.46 to 19.20 x 10<sup>5</sup> cfu per g.

#### **Yeast and Mould Count in *peda***

In the present study the product prepared by inclusion of different level of ginger powder with buffalo milk *khoa* was found to be free from yeast and mould count. Ginger has antimicrobial property, which helps to inhibit the growth of microorganism.

#### **Coli form Count in Ginger *peda***

Coli form in any dairy product indicates the hygienic condition maintained during production and packaging. In the present study coli form were found to be absent in ginger *peda*.

#### **Cost of Production**

Cost structure of product showed that, cost was decreased from Rs. 152.42 to 150.29 as compared to control Rs. 153.53. This might be due to the levels of addition of ginger powder increased from 2 to 6 percent.

**Table 2: Cost structure of Ginger *peda***

Sr. No.	Particulars	Rate (Rs)	T <sub>0</sub>		T <sub>1</sub>		T <sub>2</sub>		T <sub>3</sub>	
			Qty. (kg)	Amt. (Rs.)	Qty. (kg)	Amt. (Rs.)	Qty. (kg)	Amt. (Rs.)	Qty. (kg)	Amt. (Rs.)
1	Milk (lit)	40	4	160	4	160	4	160	4	160
2	<i>Khoa</i> obtained (Kg)		1		1		1		1	
3	Sugar (kg)	32/kg	0.300	9.60	.300	9.60	.300	9.60	.300	9.60
4	Ginger powder (kg)	80/kg	--	--	0.02	1.60	0.04	3.20	0.06	4.80
5	Miscellaneous charges	--	--	10.00	--	10.00	--	10.00	--	10.00
6	Fuel charges	--	--	5.00	--	5.00	--	5.00	--	5.00

Table 2 – Cond.,										
7	Labour charges	--	--	15.00	--	15.00	--	15.00	--	15.00
8	Product Obtained (kg)		1.30		1.32		1.34		1.36	
9	Total cost for obtained product			199.60		201.2		202.8		204.4
10	Total cost per kg	--	--	153.53		152.4 2		151.3 4		150.2 9

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